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Hamilton-Wentworth
Green Community Initiative
- Background report and
community profile

Hamilton-Wentworth



Green Community Initiative

Background Report
and
Community Profile

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Hamilton-Wentworth
Green Community Initiative

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The Regional Municipality of Hamilton-Wentworth Green Community Initiative Background Report and Community Profile

1.0 Objective of the Report/Profile

The objective of this report/profile will be to give a detailed description of the region of Hamilton-Wentworth. The information collected and illustrated within this report/profile will set the base-line for the Hamilton-Wentworth Green Community Initiative (HGCI). The base-line data will enable the HGCI to evaluate the effectiveness of projects conducted under the Initiative. To accomplish this the report/profile presents information collected for:

- * Geographic Overview:
 - Physical Factors
 - Population Demographics
 - Income Factors
 - Housing data
 - Education
 - Transportation
 - Green Space Inventory
 - Labour and Unemployment
- * Energy, water and waste usage
- * Listing of Existing Environmental Initiatives

2.0 Physical Factors

2.1 Location

The region of Hamilton-Wentworth is strategically situated at the west end of Lake Ontario. Greater Hamilton is centrally located in Canada's manufacturing heartland. The region is a short distance from major urban centres in Canada and the United States. A consumer market of over 100 million people are within a five hundred mile radius or 24 hour drive. The region is the major steel producer in Canada, Stelco Steel Inc. and Dofasco Inc. both are located in the city of Hamilton. The excellent harbour facilities and location on Lake Ontario created the large manufacturing industries which dominate the Regional economy.

The municipality of Hamilton-Wentworth consists of the cities of Hamilton and Stoney Creek, the towns of Ancaster, Dundas and Flamborough and the Township of Glanbrook, within an area of 113,843 hectares. (Hamilton-14,098 ha; Stoney Creek-10,297 ha; Dundas-2,666 ha; Ancaster-17,751 ha; Flamborough-48,186 ha; and Glanbrook-20,845 ha.) (see Figure 1)

2.2 Topography

Major physiographic relief is provided by the Niagara Escarpment. It separates a lowland area bordering Lake Ontario from an upland region where elevations range from 200 to 1,000 feet above sea level.

2.3 Hydrology

Streams in the Dundas drainage basin drain west to east into Cootes Paradise and Hamilton Harbour. The Niagara Escarpment dominates the pattern of stream gradients.

2.4 Climate

The Region of Hamilton-Wentworth's climate is dominated by Lake Ontario and three types of prevailing winds. Winter winds come from the West-southwest (Warmer Winds) during November to January, moving to the west (Warmer Winds) during February to April. They swing to northeast (Cold Winds) during May, back to the west during June and to the southwest during July and back to the west during the late summer months. (Temperature and precipitation averages see Figure 2)

Figure 2

Climatic Normals for Hamilton-Wentworth, Ontario

	Jan.	Feb.	March	April	May	(1951 - 1980)		Aug.	Sept.	Oct.	Nov.	Dec.	YEAR
						June	July						
Mean Daily Temp. (o C)	-6.4	-6.3	-0.8	6.1	12.6	18.0	20.5	20.0	15.7	9.4	3.4	-3.4	7.4
Mean Daily Max. (o C)	-2.6	-2.1	3.3	11.2	18.2	23.7	26.2	25.7	21.0	14.1	7.1	0.3	12.2
Mean Daily Min. (o C)	-10.2	-10.3	-4.8	1.0	7.0	12.2	14.8	14.3	10.5	4.8	-0.2	-7.0	2.7
Rainfall (mm)	25.8	22.0	47.4	71.7	65.7	64.6	70.5	75.2	74.4	61.1	60.1	42.3	680.8
Snowfall (cm)	39.4	30.1	20.1	6.4	0.0	0.0	0.0	0.0	0.0	1.3	11.5	34.3	143.1
Total Precipitation (mm)	63.2	52.6	70.8	79.4	65.7	64.6	70.5	75.2	74.4	1.3	68.2	78.1	824.0

Source: Canadian Climate Normals, Temperature and Precipitation for Ontario (1951-1980)

Figure 1



3.0 Hamilton-Wentworth Community Profile

3.1 Population

The 1992 population of the Region was approximately 448,521 and has steadily grown during the previous five years. Projected population by 2006 is expected to be 503,000. (Figure 3 illustrates population by municipality - for further information see Figure 3.1 & 3.2 - Figure 4 displays population projections)

Figure 3

MUNICIPALITY	1985	1988	1989	1990	1991
Hamilton	307,690	309,679	313,981	316,210	318,947
Stoney Creek	41,964	45,908	47,636	48,753	49,804
Flamborough	25,541	27,688	28,605	29,240	29,290
Dundas	20,081	20,950	21,230	21,793	21,789
Ancaster	16,542	20,404	21,260	21,791	22,053
Glanbrook	9,446	9,494	9,651	9,848	9,801
Region	414,297	434,123	442,363	447,635	451,684
% Growth p.a.	1.7	3.1	1.9	1.2	0.1

Source: Statistics Canada, 1991.

Figure 4

Projection Type	MTE 1991	Region 2006	MTE 2011
High	443,300	503,000	544,700
Low	436,100	452,000	478,100
"Most Likely"	439,500	483,000	507,800

Source: Statistics Canada, 1991.

3.2 Income Factors

Hamilton-Wentworth's income distribution is generally similar to that in Ontario and Canada. The majority of the Lone Parent and Single Person households have incomes below the poverty line. Approximately 30% of all family households renting in Hamilton-Wentworth pay 30% of all their gross income on rent. (Figure 5. Income by Household Type)

The median household income in 1985 for Hamilton-Wentworth was \$30,550. The city of Hamilton has a median income lower than the regional average while the surrounding suburban municipalities are all higher, with Ancaster recording the highest at \$48,230. (Figure 6. Percentage of low-income by Municipality)

Just over 17% of the people in Hamilton-Wentworth in 1985 lived in a family with an income below the Statistics Canada Low-Income Cut-Off Line.

Figure 5

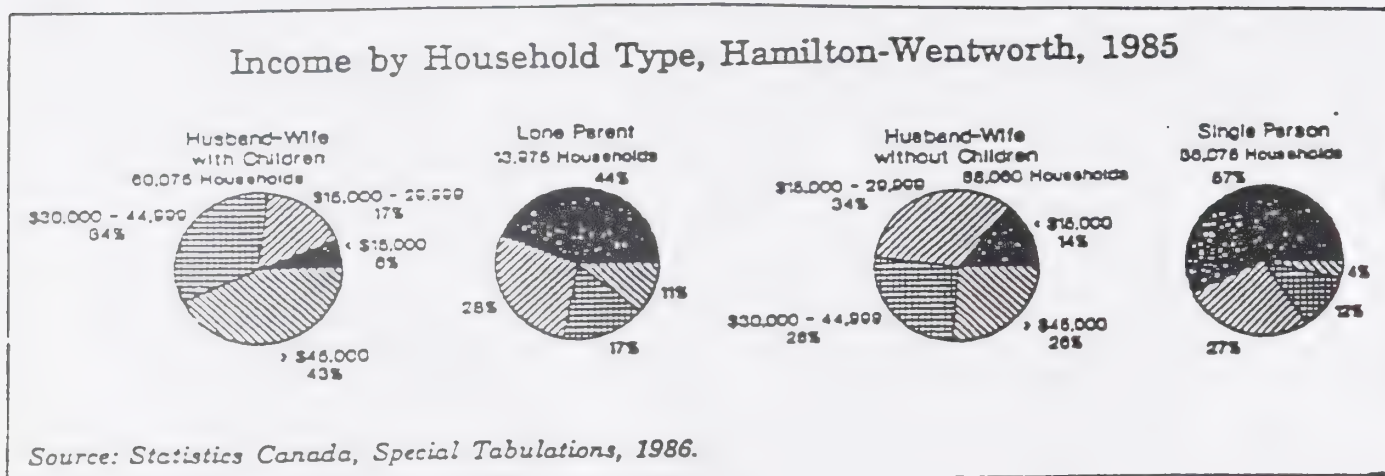


Figure 6

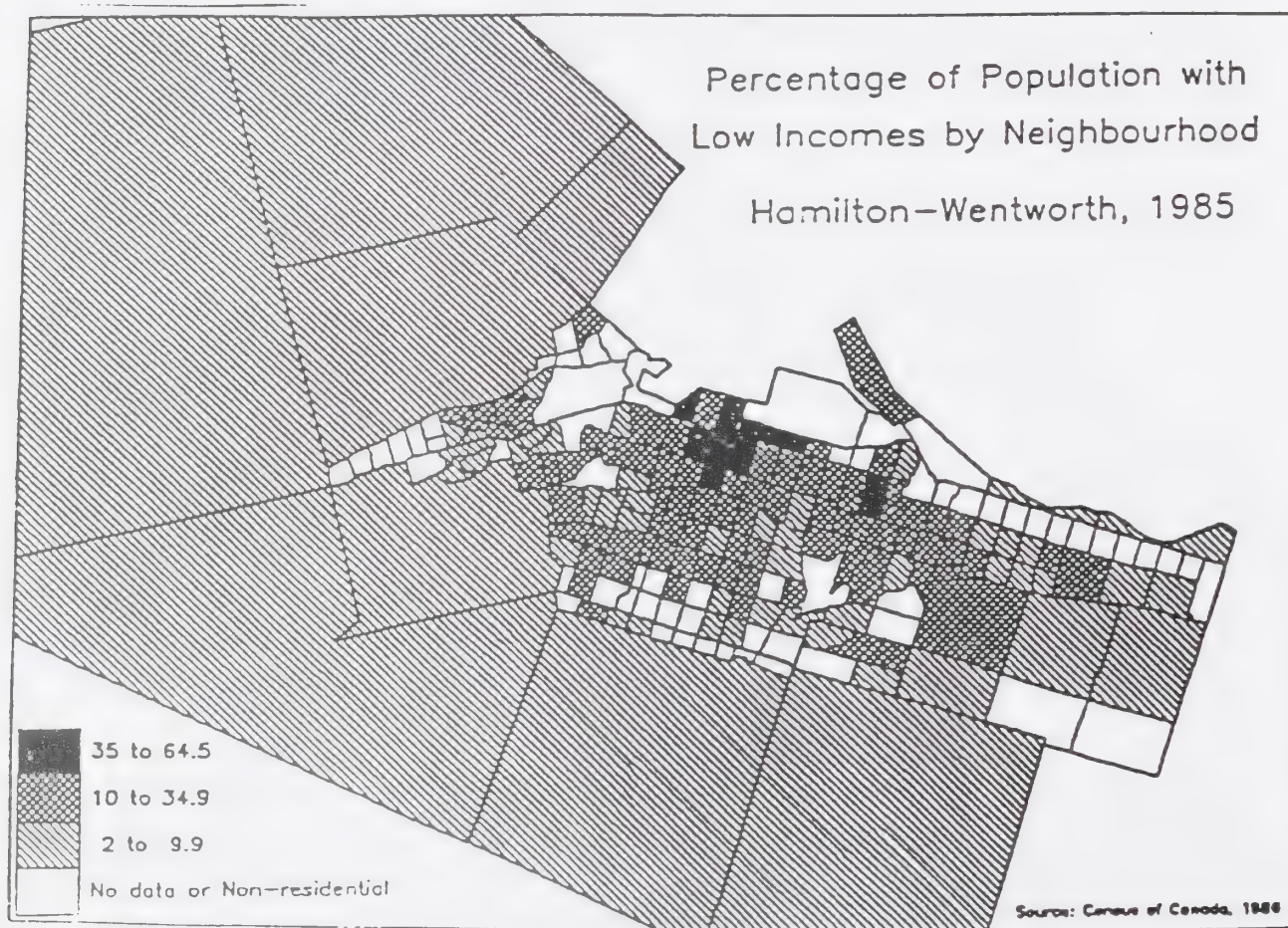
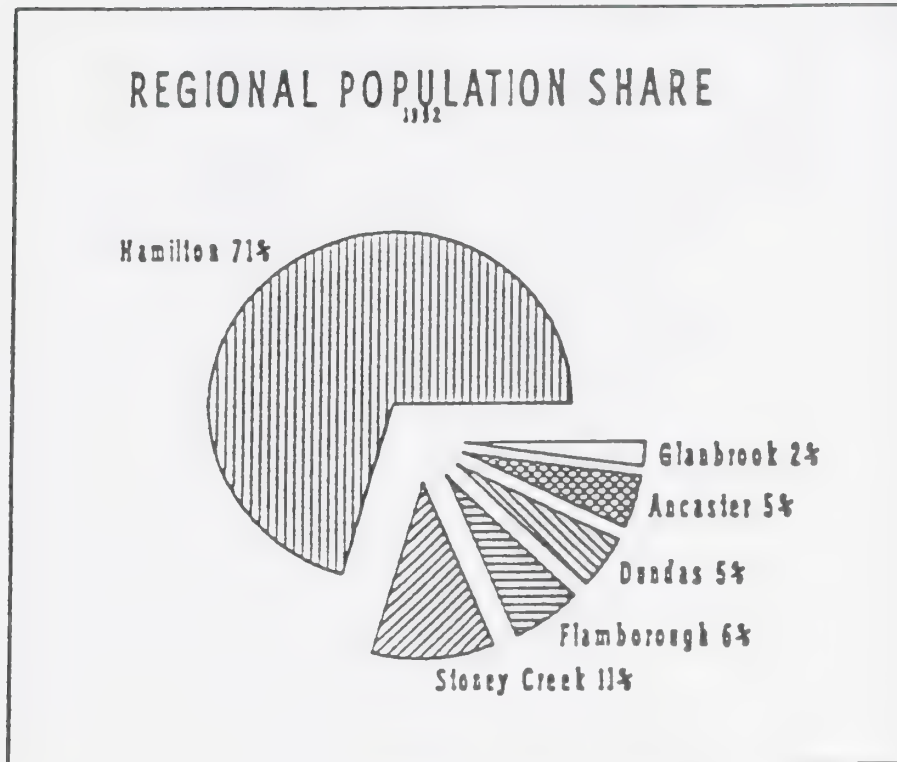
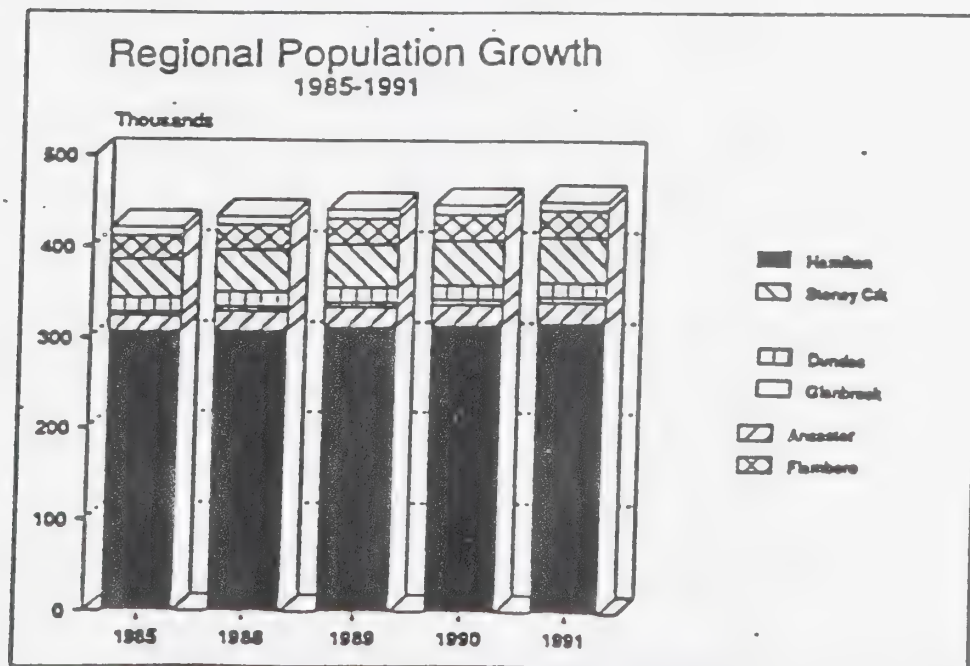


Figure 3.1
Population Demographics



Source: Region of Hamilton-Wentworth (Planning Dept. 1991)



Source: Region of Hamilton-Wentworth (Planning Dept. 1991)

Figure 3.2
Age/Sex Distribution of Regional Population

Age Group	Male	Female
0-4	18,940	18,150
5-9	18,250	17,285
10-14	19,210	18,445
15-19	21,485	20,830
20-24	24,665	24,580
25-29	23,750	24,035
30-34	21,580	22,875
35-39	21,085	21,995
40-44	17,715	17,995
45-49	15,190	15,225
50-54	14,830	14,995
55-59	15,060	15,505
60-64	13,975	15,405
65-69	10,030	11,565
70-74	7,615	9,625
75 +	8,805	16,335

Source: Statistics Canada, 1986 Census

Mother Tongue/Population

Language	1986 Census	% Total
English	441,205	82.45
French	7,425	1.39
Chinese	2,730	0.51
Dutch	6,265	1.17
German	8,700	1.63
Greek	2,040	0.38
Hungarian	3,665	0.68
Indo-Pakistani	1,575	0.29
Italian	22,405	4.19
Japanese	350	0.07
Korean	305	0.06
Polish	6,695	1.25
Portuguese	5,545	1.04
Scandinavian	675	0.13
Ukrainian	5,255	0.98
Vietnamese	625	0.12
Other	19,685	3.68

Source: Statistic Canada 1986 Census

3.3 Housing

The cost of housing represents the single largest expenditure for the majority of the households in Hamilton-Wentworth. In 1990, over 20,000 households in Hamilton-Wentworth saw the cost of rental accommodation consume over 30% of their gross income. In February 1991 there were 1,800 names on the waiting list of the Hamilton-Wentworth Housing Authority which is just one of thirty non-profit housing providers in the Region. (Figure 7 lists the residential housing types - Figure 8 Population of occupied dwelling & status; rented or owned)

Figure 8

Region	1988 Population	Occupied Private	Owned	Rented
Ancaster	17,264	5,465	5,050	415
Dundas	20,118	7,005	4,985	2,020
Flamborough	26,142	8,220	6,955	1,265
Glanbrook	9,592	2,975	2,640	335
Hamilton	306,728	117,925	66,755	51,170
Stoney Creek	43,554	13,990	10,970	3,020
TOTAL	423,298	155,560	97,355	58,225

Source: Statistics Canada, 1991.

3.4 Education

The Region of Hamilton-Wentworth is divided into three school boards, Separate School System and the Public System, which is divided into the Hamilton and Wentworth County Boards. (see Figure 9.)

Figure 9
Separate School System

	No. of Schools	Students	Teachers
Elementary	53	approx. 18,000	902
Secondary	8	7,000	445

Public School System; Hamilton & Wentworth County

	No. of Schools	Students	Teachers
Elementary	76	25,905	1664
Secondary	18	12,105	892
Vocational	4	869	109

	No. of Schools	Students	Teachers
Elementary	40	11,251	750
Secondary	6	5,452	435

Source: Region of Hamilton-Wentworth (Planning Dept. 1991)

Number of Residential Units by Household Maintainer – 1991

Persons Per Household

	1	2	3	4	5	>6	Total Population	Total Units	Population/unit
Farm Residential (Stoney Creek)	41	116	72	93	39	25	1206	386	3.12
Non – Residential	29	30	25	23	9	5	331	121	2.74
Other Residential	30	34	13	10	3	0	192	90	2.13
Plex	40	47	26	12	2	3	288	130	2.22
Row Condo/Freehold	256	524	252	196	64	14	3248	1306	2.49
Row Rental	21	61	58	45	11	2	564	198	2.85
Semi – Detached	32	104	111	169	80	25	1799	521	3.45
Single Detached	819	3024	2231	3413	1454	548	37770	11489	3.29
Farm Residential (Glanbrook)	51	178	100	134	65	46	1844	574	3.21
Non – Residential	11	11	13	10	2	0	122	47	2.60
Other Residential	1	0	0	1	0	0	5	2	2.50
Plex	8	10	1	2	2	2	61	25	2.44
Semi – Detached	0	2	3	1	3	1	38	10	3.80
Single Detached	198	782	442	617	252	123	7554	2414	3.13
Farm Residential (Ancaster)	54	156	90	100	49	43	1539	492	3.13
Non – Residential	17	20	9	9	5	3	163	63	2.59
Other Residential	16	0	0	1	0	0	20	17	1.18
Plex	7	12	2	7	1	1	76	30	2.53
Row Condo/Freehold	43	79	16	6	2	0	283	146	1.94
Row Rental	1	2	1	1	1	0	17	6	2.83
Semi – Detached	9	11	5	6	5	1	101	37	2.73
Single Detached	495	1741	1122	1716	730	258	19405	6062	3.20
Farm Residential (Hamilton)	1	8	0	1	4	2	53	16	3.31
Non – Residential	1364	918	324	215	96	59	5866	2976	1.97
Other Residential	658	661	164	99	39	10	3123	1631	1.91
Plex	2294	2079	893	521	169	80	12540	6036	2.08
Row Condo/Freehold	717	1368	1192	1177	420	141	14683	5015	2.93
Row Rental	145	674	1056	950	415	172	11568	3412	3.39
Semi – Detached	790	1516	1199	1321	618	256	17329	5700	3.04
Single Detached	10081	22180	12659	13202	5557	2268	186619	65947	2.83
Farm Residential (Dundas)	1	4	5	1	1	1	39	13	3.00
Non – Residential	90	70	23	15	1	2	376	201	1.87
Other Residential	27	19	6	0	0	0	83	52	1.60
Plex	83	67	23	16	5	0	375	194	1.93
Row Condo/Freehold	82	132	74	53	19	10	935	370	2.53
Row Rental	12	25	27	35	10	0	333	109	3.06
Semi – Detached	49	57	34	38	10	6	503	194	2.59
Single Detached	562	1746	970	1288	524	169	15750	5259	2.99
Farm Residential (Flamborough)	145	402	234	253	144	141	4229	1319	3.21
Non – Residential	88	191	47	40	20	7	913	393	2.32
Other Residential	69	141	32	31	10	0	621	283	2.19
Plex	38	49	21	22	5	2	324	137	2.36
Row Condo/Freehold	6	15	9	14	3	0	134	47	2.85
Row Rental	9	7	6	11	10	0	135	43	3.14
Semi – Detached	10	24	16	19	9	6	263	84	3.13
Single Detached	565	2091	1230	1795	781	339	21556	6801	3.17
Totals	20065	41388	24836	27689	11649	4771	374976	130398	2.88

The illiteracy rate within the Region is similar to the national average of 16% and for the age between 16 to 24 the rate was 6% (Statistics Canada, 1990) The "Level of Education" received by the working age population of the Region is compiled in Figure 10.

Figure 10

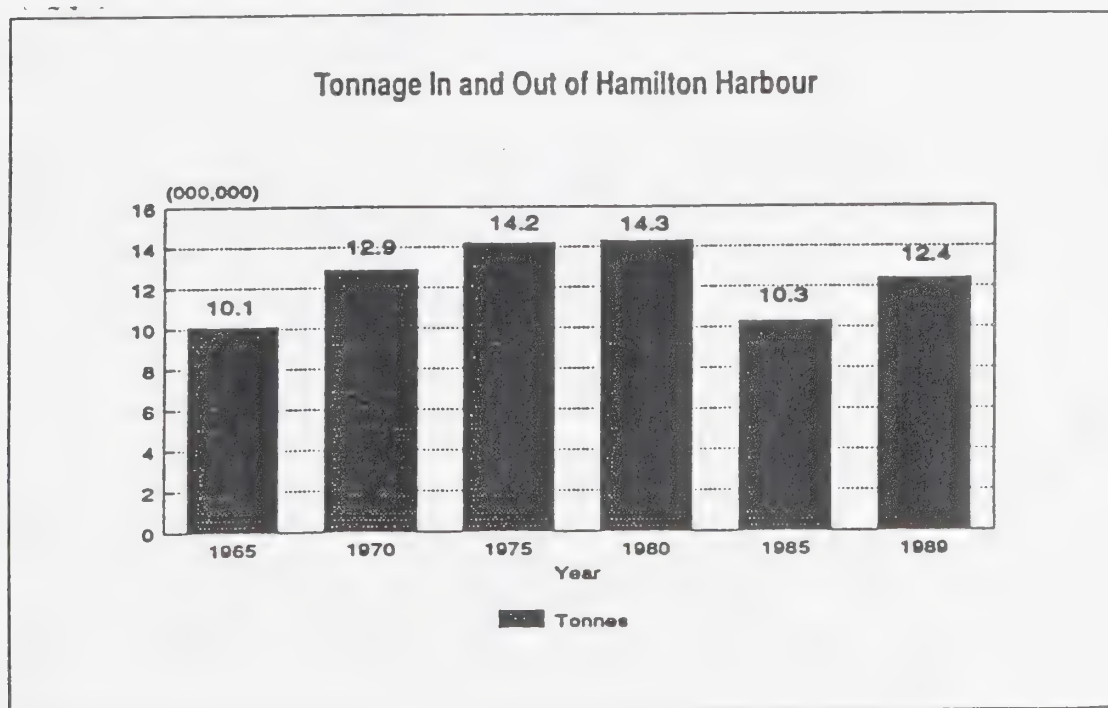
Level	Male	Female	Total
Less than grade 9	26,095	31,295	57,390
Grades 9 - 13 without diploma	48,230	54,060	102,290
Grades 9 - 13 with diploma	18,735	25,190	43,925
Trades / Non - University	41,700	40,100	81,795
Some University	11,870	11,385	23,225
University Degree	15,860	11,525	27,385

3.5 Transportation

Hamilton-Wentworth is linked by a superb transportation network. Located at the hub of the Golden Horseshoe, the Region has direct access to all major centres in the southeast. Within the Region, the Hamilton Street and Railway is undertaking the initiative of clean air emissions for their public transit fleet, with the use of natural gas along with the electrically powered vehicles.

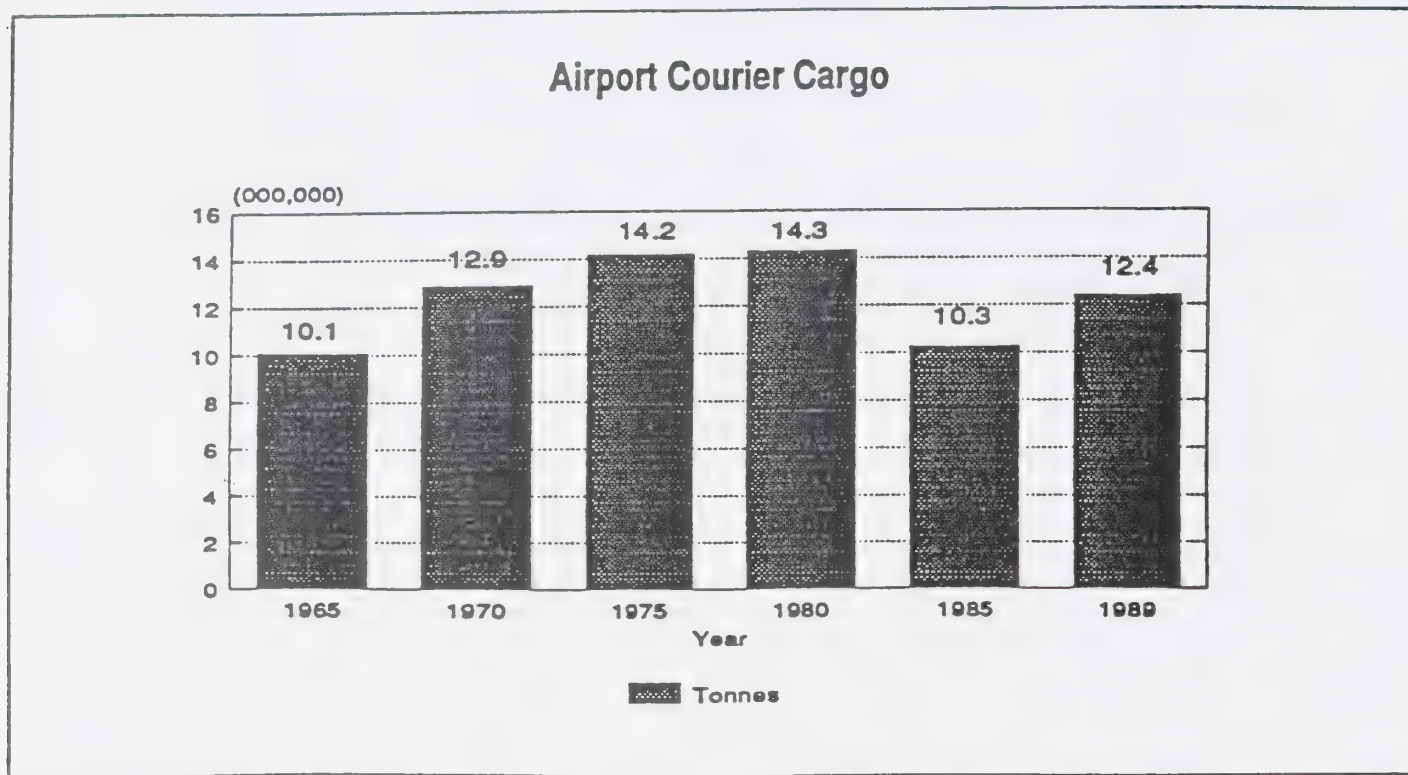
Hamilton harbour connects the Region through the St. Lawrence Seaway to international shipping lanes. (Figure 11. Tonnage for Hamilton Harbour)

Figure 11



The Hamilton Airport is an important regional airport, located sixty kilometres from Pearson International and has the capability for growth. (Figure 13. Airport Courier Cargo)

Figure 12



Source: United Parcel Service & Federal Express

3.6 Existing Green Space and Protection Activity

3.6.1 Wetland

The province has issued the Wetland Policy Statement to ensure the protection of wetland Classes 1-3 from development. (Figure 13 lists the acres of Classified wetland by municipality for the Region.)

The Royal Botanical Gardens owns 2,000 acres of wetland surrounding Cootes Paradise and undertakes conservation and rehabilitation projects within this wetland area.

3.6.2 Trees and Wooded Areas

The estimate of the acreage of forested land in the region is 35,000 plus woodlots bringing the total to 55,715. (Figure 13.) The majority of heavily forested land is located in the western half of the Region. Direct activities to save the Region's woodlots and forests have been undertaken by the Conservation Authority, the Ministry of Natural Resources and the Ontario Heritage Stewardship Program.

Figure 13

WETLANDS							
Source: Ministry of Natural Resources, Wetlands Inventory Report 1985							
WETLANDS	ANCASTER	DUNDAS	FLAMBOROUGH	GLANBROOK	HAMILTON	STONEY CR.	TOTAL(acres)
CLASS 1	-	-	11,053	225	32	-	11,310
CLASS 2	-	-	-	91	-	-	91
CLASS 3	-	-	-	-	-	235	235
TOTAL (acres)	-	-	11,053	316	32	235	11,636
FOREST & WOODLOTS							
Source: Ministry of Natural Resources, Forest Resources Inventory (1990 & 1994)							
	ANCASTER	DUNDAS	FLAMBOROUGH	GLANBROOK	HAMILTON	STONEY CR.	TOTAL(acres)
FORESTS & WOODLOTS	9,494	(4)	37,751	8,330	853	2,486	55,718

3.6.3 Environmentally Sensitive Areas(ESAs)

The Hamilton-Wentworth Official Plan contains a section that designates thirty-seven areas in the Region of varying size as ESAs. The ESAs comprise 30,000 acres and approximately 10 percent of the Region's land area. (Figure 14.) Most of these areas are located in the western and central parts of the Region.

3.6.4 Areas of Natural and Scientific Interest(ANSI's)

ANSI's have not been given any special protection through provincial legislation. The Ministry of Natural Resources has designated thirteen ANSI's with the Region. (Figure 14.) An area can be allocated by life science or earth science attributes, these areas in the region are: Devil's Punch Bowl, Dundas Valley, Freelon Esker, King City Quarry, Spencer Creek Gorge, Westover Area and Grindstone Creek for earth science.

Beverly Swamp, Cootes Paradise, Dundas Valley, Niagara Section Escarpment, Sinclairville Basin, Spencer's Gorge Valley for life science.

3.6.5 Niagara Escarpment Plan

The Niagara Escarpment Commission has designated 6,273 acres "natural within the Plan area in the Region. (Figure 14.) A key recreational feature of the escarpment is the Bruce Trail and its associated feeder trails.

3.6.6 Conservation Authority

The Region of Hamilton-Wentworth is divided into four separate watersheds which are under the jurisdiction of the Halton, Hamilton, Grand River and Niagara Conservation Authorities. The Conservation Authorities are responsible for acquiring land under the Niagara Escarpment Plan.(Figure 14.)

Figure 14

AREAS OF NATURAL & SCIENTIFIC INTEREST							
Source: Ministry of Natural Resources, Cambridge District, Resource Inventory (1988)							
	ANCASTER	DUNDAS	FLAMBOROUGH	GLANBROOK	HAMILTON	STONEY CR.	TOTAL(acres)
EARTH SCIENCE	1,424	-	723	-	-	26	2,173
LIFE SCIENCE	578	427	4,838	225	-	139	6,208
TOTAL(acres)	(1) 1,424	427	5,561	225	-	165	7,803
NIAGARA ESCARPMENT COMMISSION							
Source : Niagara Escarpment Commission (1990)							
	ANCASTER	DUNDAS	FLAMBOROUGH	GLANBROOK	HAMILTON	STONEY CR.	TOTAL(acres)
NATURAL	2,451	419	1,519	-	1,062	821	6,272
PROTECTED	2,770	637	2,309	-	920	2,303	8,939
RURAL	932	-	5,032	-	-	247	6,211
TOTAL(acres)	6,153	1,056	8,860	-	1,982	3,371	21,422
ENVIRONMENTALLY SENSITIVE AREAS							
Source : Ecologists Inc (1978)							
	ANCASTER	DUNDAS	FLAMBOROUGH	GLANBROOK	HAMILTON	STONEY CR.	TOTAL(acres)
E.S.As	1009	(2) 7840	16746	714	2261	1486	30074
CONSERVATION AUTHORITY PARKS (3)							
Source : Conservation Authority (1980)							
	ANCASTER	DUNDAS	FLAMBOROUGH	GLANBROOK	HAMILTON	STONEY CR.	TOTAL(acres)
HAMILTON REGION C. A.	1953	372	1935	-	27	243	4529
NIAGARA PENINSULA C. A.	-	-	-	978	-	-	978
HALTON REGION C. A.	-	-	960	-	-	-	960
GRAND RIVER C. A.	-	-	-	-	-	-	-
TOTAL(acres)	1953	372	2895	978	27	243	6467

3.7 Labour and Employment

The Region of Hamilton -Wentworth has a labour population of 337,000 as of May 1994. The unemployment rate for the Region is at 8.6%. (see Figure 15.) The unemployment rate within the Region has decreased over the 3% since 1993, illustrating the growth in the local economy. (see Figure 16.)

Figure 15

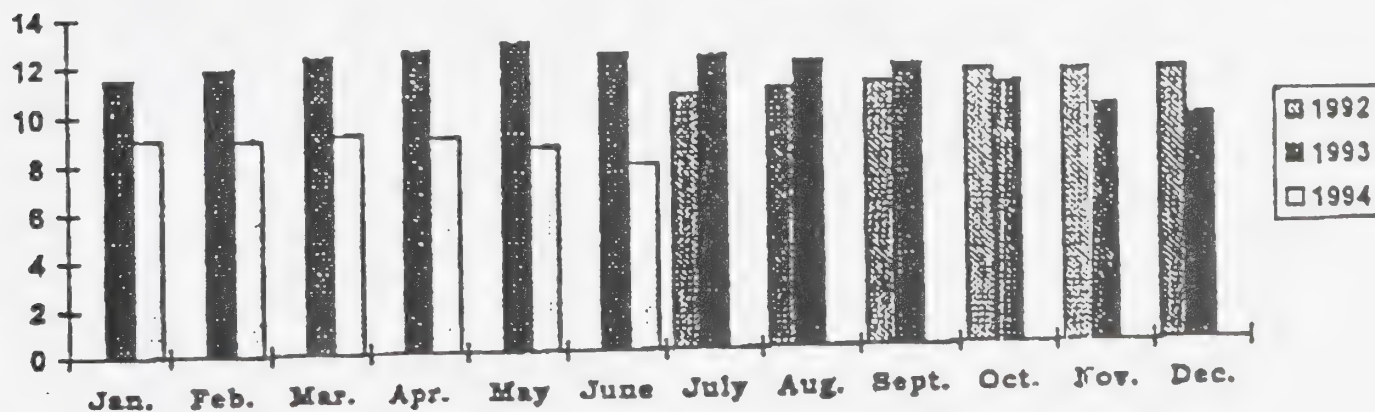
Labour Force Characteristics

	June 1994	May 1994	Month/Month variance	June 1993	Yr/Yr Variance
Labour Force	336,000	337,000	-0.29%	332,000	+ 1.20%
Employment	309,000	308,000	+ 3.24%	291,000	+ 6.18%
Unemployment	26,000	29,000	-10.34%	41,000	-30.95%
Unemployment rate	7.8%	8.6%	-0.8%	12.3%	-4.20%
Participation rate	66.6%	67.0%	-0.4%	66.8%	-0.20%
Employment/ population ratio	61.4%	61.2%	+ 0.2%	58.6%	+ 3.70%

Source: Statistics Canada 1994

Figure 16

Actual Unemployment Rates July 92-June 94 for Hamilton Census Metropolitan Area



3.7.1 Labour Force Analysis

A slight decrease in the Labour Force in June over May 1994, however in comparison to June 1993, figures show there is a 1.2% increase in the population that is fifteen of age and over who were employed. A modest employment increase of 18,000 in June 1994 as compared to June 1993. The number of individuals unemployed continue to decrease since June 1993. The seasonally adjusted unemployment rate is 8.0% for Hamilton-Wentworth Census area. (Source Statistics Canada 1994)

3.7.2 Major Employers

The Region of Hamilton-Wentworth is an industrial based economy, with the steel industry as the major employer of the Region. (Figure 17 lists the top thirty employers in the Region.)

Figure 17

MAJOR EMPLOYERS IN LABOUR MARKET

Establishment	Employees
Dofasco Inc., Hot & Cold Rolled Steel Plates/Sheets	8,800
Stelco Inc., Primary Steel Products	6,350
Chedoke-McMaster Hospitals	4,866
Hamilton Civic Hospitals	4,500
Hamilton Board of Education	4,249
Regional Municipality of Hamilton-Wentworth	4,194
McMaster University, Post Secondary Education	3,800
St. Joseph's Hospital	2,937
Mohawk College, Post Secondary Arts & Technology	1,600
Bell Canada, Communication Systems	1,281
Westinghouse Canada, Electrical & Mechanical Products	1,268
St. Peter's Hospital	1,200
Camco Inc., Major Electrical Appliances	950
Procter & Gamble Detergents and Soaps	875
Hamilton Street Railway, Public Transit	858
J.I. Case, Agricultural Machinery	800
Eaton's Department Store	800
Sears Canada Inc., Department Store	791
Canadian Imperial Bank of Commerce	772
The Hamilton Spectator, Daily Newspaper	738
Coppley, Noyes & Randall, Clothing	625
Hamilton Psychiatric Hospital	625
National Steel Car, Railway Freight Cars	438
St. Peter's Hospital	625
Royal Bank of Canada	600
Slater Steel, Primary Steel Products	575
Consumer's Glass, Glass Containers	525
Workers' Compensation Board, Employment Assistance	500
Levi Strauss, Clothing	425

Note: There are more than 14,000 businesses of various sizes in Greater Hamilton. See also the Greater Hamilton Executive Summary for a list of other major Regional Employers with over 150 employees.

The information given in Figure 17 lists the number of employees for each of the major employers in the Region. This data was collected in 1991, since that data a number of these employers have restructured, most notably Dofasco Inc. and Stelco Inc.. These companies are still the major employers in the Region, however the employee numbers are dated.

4.0 Energy, Water and Waste: Region of Hamilton-Wentworth

4.1 Energy use

Energy use is related directly to local climate, industry mix, characteristics of housing stock, public transit, income levels and demographic characteristics. Canada as a nation, has an energy use per unit of economic output almost twice as high as European countries due directly to the Canadian climate. The Region of Hamilton-Wentworth has a high energy use per unit of economic output in comparison to other regions within Canada and the province due to its heavy industrial base economy.

4.1.1 Residential

The largest component of residential energy use is space heating (67%). Water heating, appliances and lighting account for the remaining 17%, 14% and 2% respectively. In the Region of Hamilton-Wentworth the residential sector represents 25% of the total energy usage for the area. (see Figure 18) Home owners accounted for 2,400,000 MW.h within the Region. (see Figure 19)

4.1.2 Commercial/Institutional

Energy consumption in the commercial and institutional sector is the energy required to heat, light and run equipment. Heating and cooling account for about two thirds of the total energy consumed in the commercial/institutional sector. This sector accounts for 29% of the total energy used in the Region of Hamilton-Wentworth. (see Figure 18)

Ontario Hydro and the City of Hamilton have implemented a four year program to replace the remaining mercury lights with high pressure sodium lighting. Streetlighting accounts for 35% of the city's annual energy expenses, this program will save approximately \$1.6 million annually.

Energy use varies considerably depending upon the age of the building. Many commercial and institutional buildings in Hamilton-Wentworth were constructed prior to the energy conservation practices implemented after 1973. This older building stock represents a high energy usage position of the sector.

4.1.3 Industrial

The Region of Hamilton-Wentworth's economy is dominated by the industrial manufacturing based industry. Within the Region, the industrial sector consumes 46% of the total yearly energy consumption. (see Figure 18)

Two thirds of the energy consumed in the industrial sector is used to generate heat for the production process, the remaining goes into lighting space heating and other uses. Hamilton-Wentworth's largest industry, iron and steel (metals) accounted for the highest energy consumption for the sector and the highest energy consumption for the Region at 36,000,000 MW.h. (see Figure 19)

Figure 18

1991 Consumption by Sector

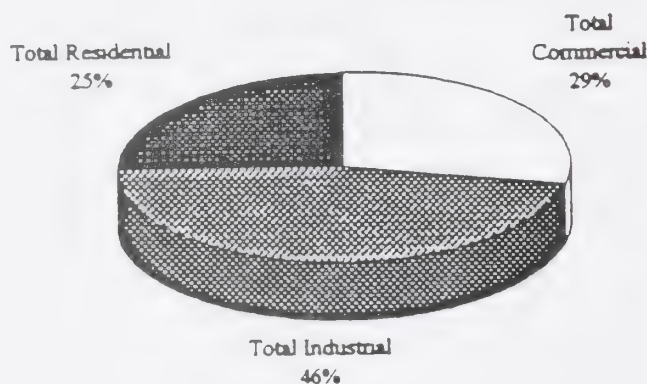
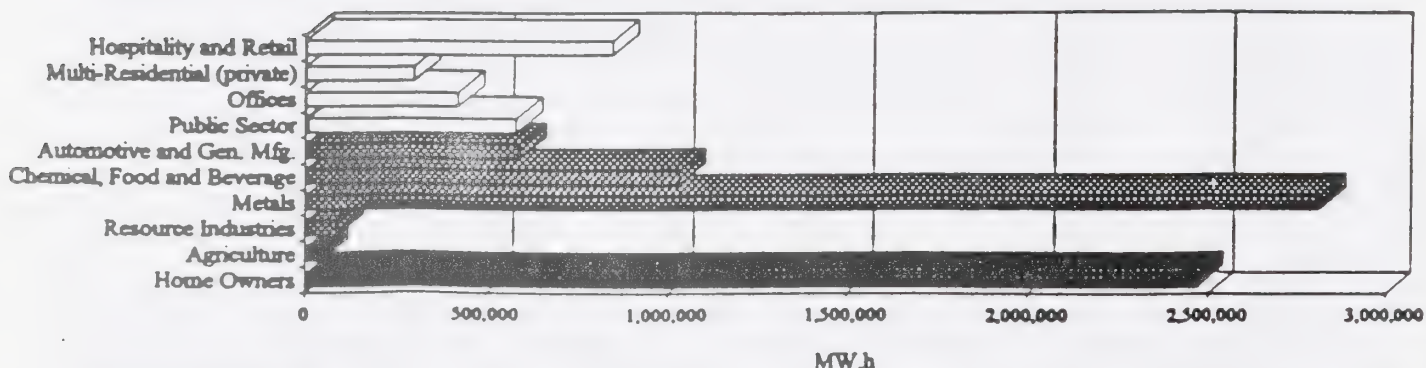


Figure 19

1991 Consumption by Target Market



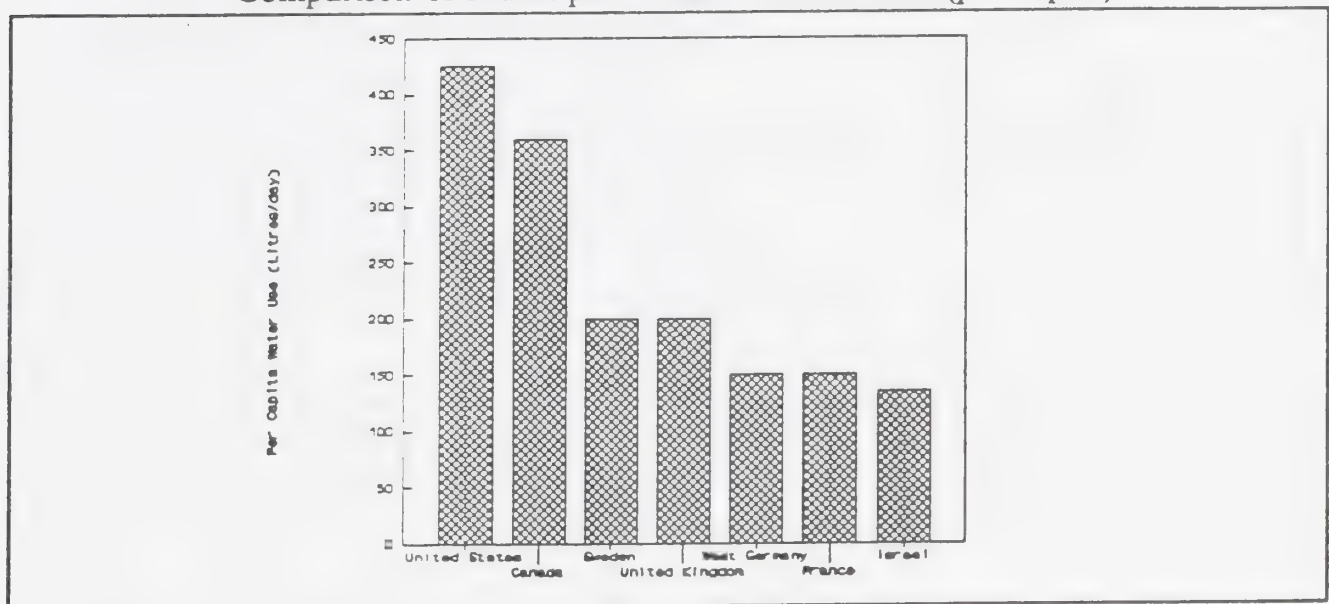
Source: Market Statistics

4.2 Water Use

4.2.1 Municipal Water

The Hamilton-Wentworth region is located on the shores of one of the largest freshwater systems in the world. Here, as in many parts of Canada, the abundance of water and the subsequent low water prices have generally encouraged high water use. Analysis of metered records of consumption in Hamilton-Wentworth have shown that domestic consumption ranges from 297m³/yr to 479m³/yr of municipally treated water for toilet flushing, bathing, washing clothes, and watering lawns, (note that only 4% of the total water used is actually for drinking and cooking). This is similar to the generally high water usage rates of Canadians - compared to other developed countries, Canada ranks second highest in per capita water usage, (see Figure 20).

Figure 20
Comparison of Municipal Domestic Water Use (per capita)

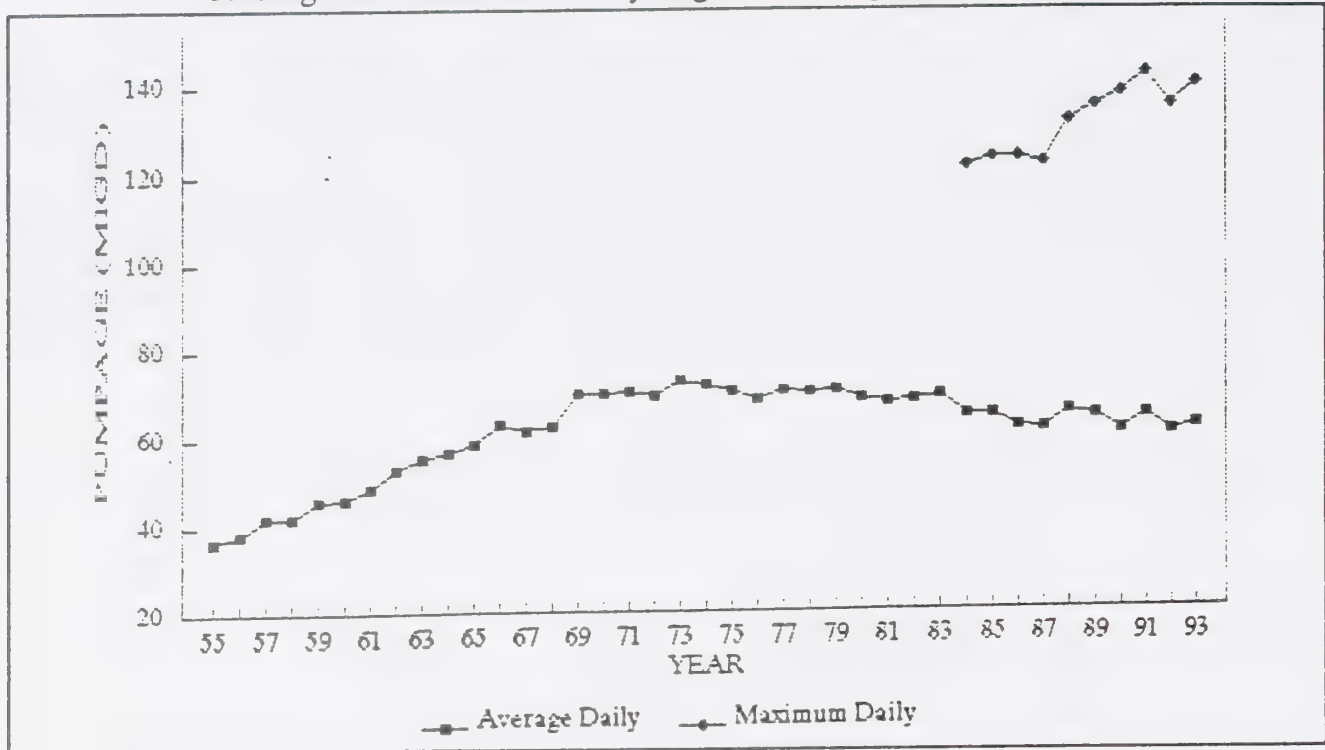


Source: State of the Environment 1991

Despite this high demand on the regional water supply, water never been a limiting factor to urban development. At the present time, the Woodward Avenue regional water treatment plant is working well below capacity. The high lift pumping station has an installed capacity of 809,000m³/day.

As can be seen in Figure 21, demand for water grew rapidly in the 1950s and 60s, peaked in the 1970s and declined somewhat today. This plateau and slight decrease can be attributed to increased recycling of water by industrial users, and the metering of residential household water use since the 70s. Thus, total water demand in the Region has not increased since the 1970's, even though the population has continued to increase and the geographical extent of serviced urban areas has grown substantially.

Figure 21
Average and Maximum Daily High Lift Pumpage (1955-1993)



Although over 75% of the population is serviced with Regional water from the Woodward Avenue Water treatment plant, groundwater is important to many outlying areas of the Hamilton-Wentworth region. There are communal water supply systems in Freelon, Carlisle, Greenville and Lynden.

4.2.2 Sewage

Three sewage treatment plants (STPs) are currently operated by the Region: the Woodward Avenue STP, Dundas STP, and the Waterdown STP. These three plants have a combined average flow of 324,347 cubic metres a day.

This system currently satisfies the Region's needs. All three STPs are currently operating near capacity, due to both design limitations and the limited assimilative capacity of the receiving waters, (Cootes Paradise and Hamilton Harbour). The Woodward Avenue treatment facility is capable of handling Hamilton-Wentworth's normal dry weather flows. During periods of high runoff the volume of flow conveyed to the plant by the combined sanitary and storm sewer system exceeds plant capacity, necessitating the bypassing of the combined sewage to the receiving waters.

4.3 Waste

In 1993, 201 242 tonnes of solid waste was disposed of in the Region of Hamilton-Wentworth. On average, residents produce 19kg of solid waste per person per day, or 332kg per person per year (excluding ICI wastes).

To properly manage this amount of waste, the Region uses an integrated system approach, (see Figures 1 and 2). This Solid Waste Management system consists of two main elements:

- 1) A **Waste Disposal System** consisting of three Transfer Stations, an incineration plant known as the Solid Waste Reduction Unit (SWARU), and the Glanbrook landfill site. Residential waste collection is the responsibility of each area municipality, while waste disposal is a function of the Region.
- 2) There are a variety of **Resource Recovery Programs**, which include the Blue Box recycling program, the backyard composting program, and the household hazardous waste collection program.

Figure 22

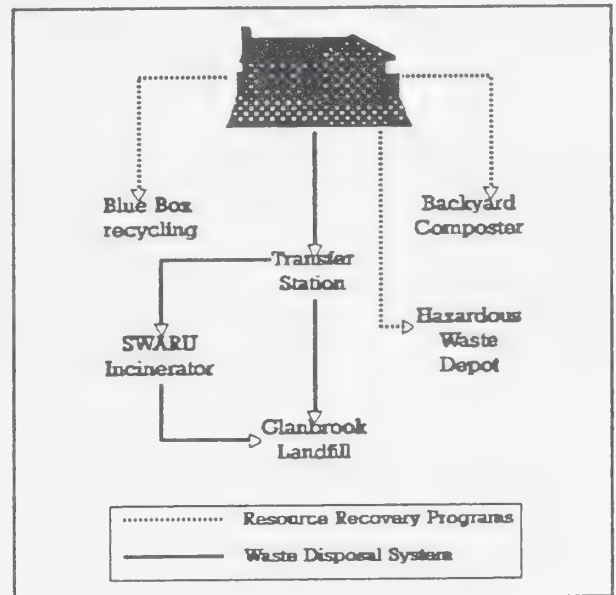
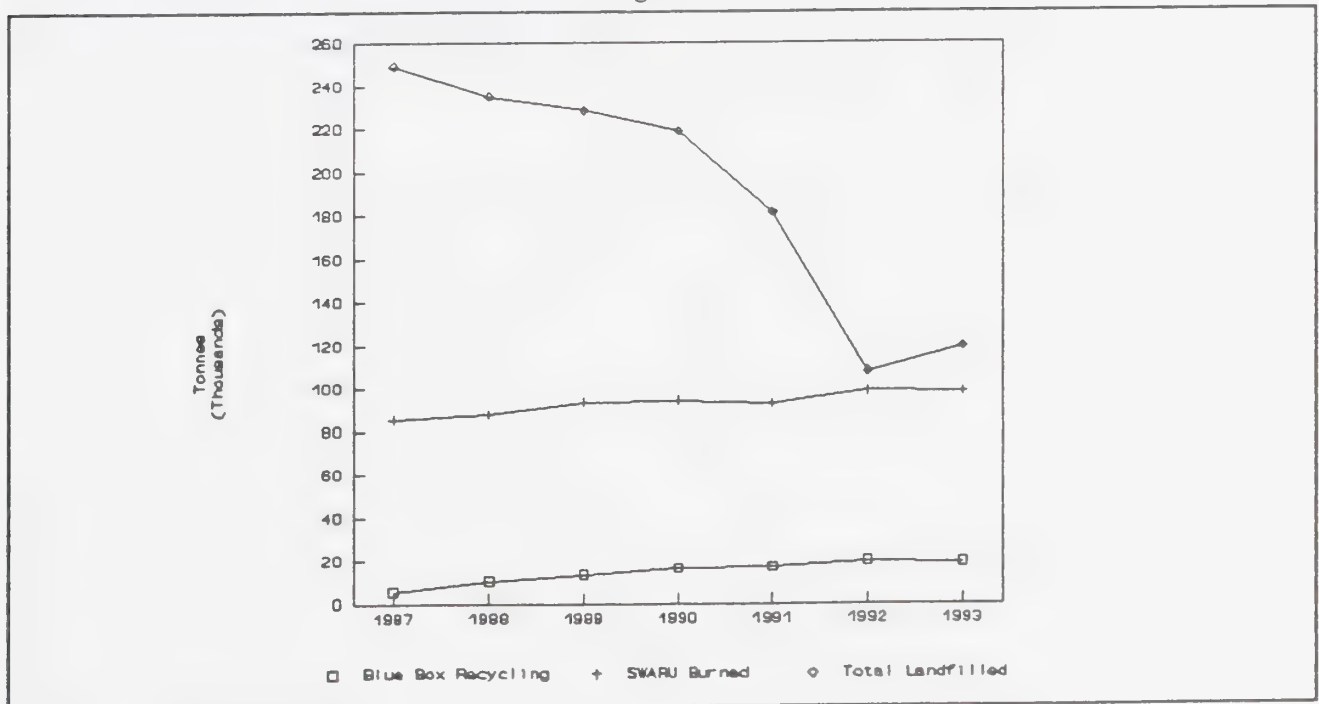


Figure 23



4.3.1 Waste Disposal System

SWARU

Each day, up to 450 tonnes of the Region's waste is sent to the SWARU plant to become "refuse derived fuel" (RDF). Waste volume is reduced 95% through incineration, and the ash sent to several landfills.

Glanbrook Landfill Site

The 537-acre landfill has a total waste handling capacity of 6.2 million tonnes, and a life expectancy of approximately 30 years.

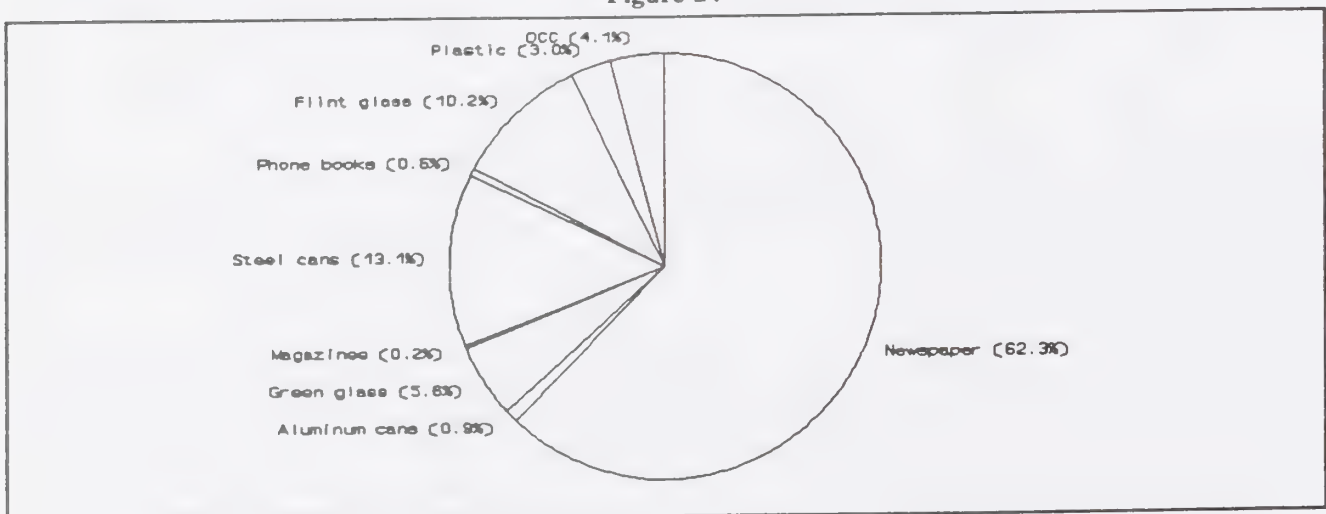
Private Sector Landfill Sites

Several landfill sites are currently under the management of private companies. Two of these are the proposed South Quarry Landfill and the existing Brow Landfill site.

4.3.2 Resource Recovery System

Blue Box Recycling Since its inception in 1978, the Blue Box residential recycling program has come to serve over 150,000 households in the Region. In 1993, over 19,000 tonnes of recyclables were diverted through the recycling program away from the landfill (see Figure 2). Each household in Hamilton-Wentworth recycles approximately 124kg per year - slightly below the MOEE average for Ontario. In addition to serving homeowners, an apartment recycling program is currently serving over 20,000 multi-residential units.

Figure 24



Backyard
Composting
Program

A Regional initiative has distributed over 35,300 composters to date. This is estimated to divert approximately 2.5% (7000 tonnes) of waste from disposal.

Household
Hazardous Waste
Collection Program

The Region has contracted a private company to operate a household hazardous waste collection program, utilizing both a mobile unit and public drop-off station. The program has over 8,500 participants annually, resulting in the safe disposal or reuse/recycling of approximately 176,000 litres of hazardous waste.

Industrial Waste
Reduction Plan

The Region has targeted local industry in its campaign to increase environmental awareness. An industrial education initiative, increased tipping fees, regular site visits and waste audits are used to emphasize the need for reducing and exchanging liquid and solid wastes.

5.0 Environmental Groups

Commitment to environmental excellence is measured in a variety of ways. An important component is the degree of voluntary participation in the environmental movement undertaken by citizens within the community. Within the Region of Hamilton-Wentworth, many environmental groups and associations are actively working to preserve the quality of life for the citizens of Greater Hamilton. The following groups represent environmental interests and concerns within the community.

Bay Area Restoration Council (BARC)

Barc's mandate is to promote, monitor and assess the implementation of the Hamilton Harbour Remedial Action Plan (HHRAP) and to ensure protection and appreciation of the ecosystem of the harbour watershed. This includes public information and education programmes. BARC was formed in 1991 as the successor to the stakeholders group of the HHRAP and is composed of both organizations and private citizens. Three major programs were initiated: sponsor the "Yellow Fish Road Program", the Hamilton Harbour Watershed Studies for Teachers and the "Classroom Aquatic Nursery Program".

Bruce Trail Association (BTA)

A conservation group that was formed in 1961 and incorporated in 1963. Their members work to secure, maintain and develop public footpaths from Niagara to Tobermory along the Niagara Escarpment. The BTA through the local club Iroquoia maintain a section of the Bruce Trail from Grimsby to Kelso. They communicate on a regular basis with all public and private landowners. Install signage when needed, stiles to cross private property. The headquarters coordinates 9 clubs and administers the Association in the Hamilton region.

Hamilton-Wentworth Community Awareness and Emergency Response (CAER)

CAER is a community-based volunteer organization, established in 1980, which works to reduce the risks to health, safety and the environment in Hamilton-Wentworth. Members include representatives from local companies and government agencies. This organization is committed to assisting local business and community groups to maximize emergency response capabilities and reduce risks to the community and the natural environment.

Citizens' Clearinghouse on Waste Management

A non-profit charitable organization that provides waste management and reduction information and related services to individuals, citizens' groups, and local government in Ontario and elsewhere. They operate a reference library, publish a quarterly newsletter, offer various waste reduction kits and project ideas, provide information services, and hold conferences and workshops. Current community projects include: Community Waste Watch (a simple method for conducting a waste audit using a one-week diary kept by individual volunteers) and Waste Reduction Action Kits (complete plans for conducting short-term local projects focused on waste reduction, reuse, or recycling).

Conservator Society of Hamilton and District Inc.

Formed in 1969, to combat pollution in the local area; current mandate to do education and activities promoting a conservator ethic among residents of urban areas around the western end of Lake Ontario. There are five chapters: Ancaster, Burlington, Dundas, Flamborough, and Hamilton. Current projects include: Nature Walkathon, On The Edge (a multi-part project to link artists and the environment), Friends of the Red Hill, and in Hamilton a campaign against chemical pesticide use on lawns and gardens.

For A Safe Environment (FASE)

This group addresses environmental issues of specific concern to Glanbrook residents. These include dumping, pollution and the disposal of hazardous waste. They are currently waging a campaign against a Mount Hope tire dump and carefully monitoring construction on Highway 6 to ensure preservation of forested areas.

Friends of the Red Hill Valley

A volunteer community organization established to promote and protect the publicly-owned greenspace associated with the Red Hill Valley in the east end of Hamilton (and partially in Stoney Creek). They are affiliated with the Conservator Society of Hamilton and District Inc. The group was formed in 1991 in the wake of the provincial government decision to withdraw funding for the construction of a six-lane expressway in the valley. Sponsors regular family hikes on holidays, as well as special events on Good Friday and publish and distribute information about the natural and historical features of the valley.

Greenpeace

Formed in 1971 as a grassroots public advocacy group dealing with environmental and peace issues. The Hamilton office has existed for six years. The mandate of this office is to raise awareness of the issues they are working on and to raise funding so they can continue to do that work. One of the main concerns of the Hamilton office is the Great Lakes water quality. They have been active in making individuals aware of the problems associated with our water quality as well as the solutions currently available to us. Greenpeace has also been encouraging individuals and groups to write politicians and industry calling for environmental changes.

Greensville Against Serious Pollution (GASP)

GASP, formed originally in 1985 and incorporated in 1989, was created to monitor air pollution from local quarry operation. Now they are opponents to this quarry turning their property into a 200 acre dump. They are also protecting their drinking water since it is obtained from wells. Currently, they are working with the Region, Town of Dundas and Flamborough to represent the people in opposition to the proposed Steetley garbage dump.

Great Lakes Remedial Action Plan (RAP)

As a result of the Water Quality Board of the International Joint Commission's identification of the areas in the Great Lakes Basin where water quality was impaired, Remedial Action Plans (RAPs) were needed to restore beneficial uses. Hamilton Harbour's RAP was formed in 1986 with the formation of a "stakeholders" group. Projects underway include: The Bay Area Restoration Council (BARC), established to promote, monitor and assess implementation of the Hamilton Harbour RAP; improvements of sediment technologies, cost-effective approaches to reducing phosphorus from municipal sewage treatment plants (Skyway and Woodward STPs), and improved treatment of urban stormwater drainage (Dundas and Woodward STPs); and controlling effluent flows by working together with the steel industries (Stelco and Dofasco).

Hamilton Naturalists' Club (HNC)

Formed in 1919, The Hamilton Naturalists' Club is a non-profit organization, dedicated to the study, appreciation and conservation of our wild plants and animals. They are involved in a variety of different projects including: meetings on natural history, nature hikes, land acquisition and preservation of natural areas in the Hamilton Region, "bird study groups", Nature Walkathon, active supporters of the Harbour Cleanup, have an annual conference (workshops and lecture series) and HNC members sit on the recently established Regional Environmental Advisory Committee (REAC), which advised the regional government on environmental issues.

McMaster Recycling Initiative/Earth Action Group

This group addresses a broad range of local, provincial, national and international issues. They use a campaign approach. Some recent activities include: NAFTA, the depletion of the ozone layer, logging Clayoquot Sound and Temagami, issues relating to the Greensville dump, and campus issues such as initiating a recycling programme at McMaster.

On The Edge

A volunteer cooperative project drawing on individual artists, environmentalists, their organizations and the community for active involvement and support. This project will use the visual arts to focus attention on the value of the natural environments of the Hamilton region and encourage their preservation.

Western Lake Environmental Coalition (WLOEC)

The group was formed in June, 1991 at the initiative of HRCA whose conservation strategy for the 90s included the idea of being an environmental advocate. They allow for local environmental groups to share issues, gain advice from one another, and assist one another. Every four months, WLOEC meets so that member organizations may share information and discuss issues. WLOEC provides each organization with a speakers list and list of displays of each organization and list of upcoming events (quarterly).

6.0 Environmental Initiatives

Hamilton-Wentworth's Sustainable Community Initiative

The sustainable community initiative was formally launched in June 1990, when Regional Council created a citizens Task Force on Sustainable Development. This group was mandated by Council to explore, in cooperation with its fellow citizens, the concept of sustainable development as a basis for review of all regional policy initiatives. Over two and a half years this group met with over 1,000 citizens and developed a community vision called **VISION 2020** and a strategy for making the vision a reality. **VISION 2020** is a statement of the type of community Hamilton-Wentworth should be in the year 2020. The vision was articulated through the Chairman's Task Force on Sustainable Development. The Task Force was mandated to develop a Regional Vision Statement integrating economic, social and environmental goals and to design an implementation strategy that will make the goals a reality. Over 300 recommendations for action, that can be taken to achieve the community stated in the **VISION 2020** document, have been identified.

International Council for Local Environmental Initiatives (ICLEI)

Organized in 1990, under the auspices of the United Nations Environment Programme, ICLEI is the international environmental agency of local governments. Hamilton-Wentworth became a member in 1991.

Local Agenda 21

Agenda 21 is a global work program aimed at creating a future based on the principals of sustainable development. It was developed at the 1992 Earth Summit in Rio de Janeiro and it represents a consensus reached by 179 nations. As part of its role in Agenda 21, ICLEI has organized a program where 21 municipalities from around the world will be selected to be role models over the next two and a half years for the advancement of local sustainable development initiatives and planning techniques, and creating a sustainable community. On October 5, 1993, Hamilton-Wentworth was selected as the sole Canadian model community, and one of two North American communities, under the Local Agenda 21 Model Community Program.

7.0 Government Initiatives: Regional, Provincial & Federal

Comprehensive Municipal Pollution Prevention Management Plan (CMPP)

Initiated in 1993, by the Department of Environmental Services, this project will set out environmental goals and strategies that can be implemented to achieve these goals. The project will involve an inter-departmental and inter-disciplinary approach with preventative solutions to environmental problems and emphasis on integrating environmental solutions into the existing municipal structure. Some of the strategies developed will address the need for the development of a comprehensive strategy for waste reduction.

Staff Enviro Team (SET)

The Staff Enviro Team (SET) is a joint Regional and City of Hamilton committee that was established in 1990 with the mandate to develop environmentally responsible purchasing, programs, and policies that promote the use of post consumer waste. A SET publication called Earth Appeal offers information that everyone can use to practice conservation in the workplace and at home.

Waste Management Coordinating Committee (WMCC)

The Waste Management Coordinating Committee (WMCC) was formed in 1988 to serve as a forum for staff from the Region and its six area municipalities to discuss solid waste management activities and ensure that, wherever possible, a uniform approach is taken.

Wastewater Technology Centre (WTC)

Established in 1971 by Environment Canada as a research and development laboratory, the WTC has become the foremost Canadian facility in the development and evaluation of treatment and disposal technology for municipal and industrial wastewaters and associated residues. It also fulfils a prominent role in international trade and scientific negotiations that focus on these areas of technology development. Current investigations emphasize the development of innovative wastewater treatment and process technologies, waste minimization, the optimization of pollution control systems and the application of site remediation technology.

Canada Centre for Inland Waters (CCIW)

Located at Hamilton Harbour at the west end of Lake Ontario, the Canada Centre for Inland Waters is a major facility for water research and aquatic sciences. CCIW houses Environment Canada which includes the National Water Research Institute, Inland Waters Directorate, Canadian Wildlife Service, National Laboratory for Environmental Testing and the Department of Fisheries and Oceans - the Bayfield Institute. Each of these organizations performs a unique function, and are described on the following pages.

National Water Research Institute (NWRI)

This institute conducts a national program of research and development in the aquatic sciences, in partnership with Canadian and international freshwater science communities, NWRI seeks solutions to current and emerging problems, provides insight into future issues, assesses the state of scientific knowledge in support of departmental programs, and provides expertise whenever the unexpected arises. It also plays a direct role in departmental planning intervention and public communications. NWRI focuses its attention on environmental quality issues with special emphasis on toxic chemical pollution and the movement of contaminants among the air, land and water components within ecosystems.

Inland Waters Directorate

The Inland Waters Directorate, Ontario Region, is the principal federal agency for water management activities in Ontario. IWD plans and participates in national and international water programs to promote wise management and protection of water resources in Canada and abroad as a vital contribution to sustainable development. Three branches are housed with the Directorate: The Water Planning and Management Branch, the Water Resources Branch and the Water Quality Branch.

Canadian Wildlife Service (CWS)

The CWS, Ontario Region, assumes responsibility for managing wildlife which falls under federal jurisdiction within Ontario. The CCIW houses the field office which monitors the presence of toxic chemicals in wildlife in the Great Lakes. Their principal focus over the years has been levels of organochlorine contaminants and their effect on fish-eating birds in the Great Lakes.

National Laboratory for Environmental Testing (NLET)

NLET provides analytical support to departmental programs nationally and functions as a member of the Conservation and Protection team of operational laboratories across Canada. Their services include a continuum of technology development/transfer and quality assurance for contracted work, promoting the growth of the private laboratory industry and a comprehensive range of chemical analysis capabilities.

Bayfield Institute

Fisheries research, fisheries and habitat management, hydrographic surveys and chart production, small craft harbours and ships support are all responsibilities of the Bayfield Institute. Together with the Winnipeg-based Freshwater Research Institute, the Bayfield Institute provides the federal Fisheries and Oceans program for the Central and Arctic Region. Their research program is focused in two key directions: environmental toxicology and fish habitat studies.

Bi-Lateral Partnership with Erie County New York

Within the Great Lakes basin a most promising development is the formation of a bilateral partnership between Erie County, New York State, United States and the Region in Ontario, Canada. This partnership, as these municipalities develop comprehensive municipal pollution prevention plans (CMPP), will encourage the exchange of experience and knowledge creating a cooperative and stimulating element to the project.

Hamilton Harbour Remedial Action Plan (RAP)

The Hamilton Harbour Remedial Action Plan (RAP) was developed jointly by the governments of Canada and Ontario to restore impaired uses of the aquatic ecosystem in the harbour. The RAP takes an ecosystem approach to restoring water quality, cleaning up sediments, and re-establishing fish and wildlife habitat in Hamilton Harbour. The objective of the Plan is to restore and preserve the beneficial uses of the Harbour.

Project Paradise

Project Paradise, the restoration of Grindstone Creek and Cootes Paradise, is a 'home grown' initiative which has developed from the HHRAP. Despite remedial measures targeted at pollution, habitat restoration will not occur naturally, but must be accomplished through direct intervention. Marsh rehabilitation and the construction of marsh and littoral habitats are key components of Project Paradise. The existing trail system will also be upgraded to improve public access and interpretive signage will be constructed at the pike spawning marshes.

The Home Water Conservation Program

The Regional Municipality of Hamilton-Wentworth, supported by Union Gas and Ontario Hydro, has introduced a Water Conservation Program. The goal of the program is to encourage the residents of the area to use water more efficiently, without significant changes to lifestyle. The Region produced Water Conservation Kits available for sale at a nominal fee of \$10. It is estimated that diligent use of the materials in the kits will reduce water consumption by 20-40%.

8.0 Environmental Reports/Research

State of the Environment Report

The Region prepared its first comprehensive State of the Environment report in October 1990. This 130 page report provides a detailed review of the current state of air, land, and water. The document itself acts as a resource and education tool to increase awareness about the state of the Region's environment. It also identifies areas where knowledge is limited or inadequate.

Natural Areas Inventory

Funded by the Region, the local Conservation Authorities and volunteer fund raising efforts (the Naturalist Club of Hamilton), provides detailed information about the status of the Region's flora and fauna. The information will be used to assess development proposals and their potential effect on the natural features of the Region.

Greenlands Study

A study in cooperation with the Area Municipalities and Conservation Authorities for the development of a connected and protected greenlands system. Initiated in 1993 with base data collection, this study will see the Region in 1994 outline a possible system and work with other groups to develop a plan of action for creating the desired system.

Eco-Tourism

Hamilton-Wentworth's Economic Development Department through its promotional activities feature many of the natural features and areas of Hamilton-Wentworth as a tourist attractions.

9.0 Transportation

Transportation Review

Hamilton-Wentworth embarked upon a strategic review of the Regional Transportation System. The study will clearly outline the transportation related services and policies required to achieve the future vision of Hamilton-Wentworth, in terms consistent with the VISION 2020 final report. The Transportation Plan considers five basic components influencing the transportation system: Roads, Transit, Parking, Land Use and Other Modes. The overall study is expected to be completed by Fall, 1994.

Transfocus 2021 Study - Interregional Bicycle/Pedestrian Network

As part of the Transfocus 2021 study, the Ministry of Transportation is preparing plans for an inter-regional trail network. The system will consist of cycling/pedestrian linkages beyond local urban networks in the Regional Municipalities of Hamilton-Wentworth, Haldimand-Norfolk, Niagara and Brant County.

The Hamilton Street Railway (HSR)

Hamilton's public transit system, The Hamilton Street Railway, has converted 40 buses to run on natural gas. It is cleaner, carbon dioxide emissions are lower, and it costs 75% less to run. The whole fleet (210 buses) will be converted to run on natural gas by 2005. As part of their fleet they also have "nature buses" which visually promote the importance of the environment.

10.0 Corporate Environmental Initiatives

Stelco Hilton Works

Stelco Hilton Works, an integrated steelmaking and processing complex, has had an active environmental program for over 30 years. Three key practices form the backbone of the environmental program -- dust control, spill prevention and recycling. Since 1961, Stelco has committed capital expenditures exceeding \$373 million to the preservation of the environment.

Dofasco

Dofasco, Canada's largest fully integrated steel producer, has actively addressed environmental issues for over 20 years. Since 1971, the company has committed about \$1 billion to reducing air and water emissions through installation, maintenance and operation of equipment for environmental control.

Carbonchem Inc.

Carbonchem Inc. was incorporated in 1987 as a joint venture between Domtar Inc. Canada and Ruetgerswerke AG of Germany. Carbonchem is committed to continual improvement in the quality of the air, soil and water surrounding its Hamilton operation.

Environmental Commitment Awards

The awards honour business in Greater Hamilton which have demonstrated a commitment to the environment through the introduction of innovative and/or exemplary environmentally-friendly products, waste management initiatives, environmental entrepreneurship and/or environmental policies, projects and activities.

11.0 Institutional Resources

Greater Hamilton offers a number of institutional resources which could offer useful services for the Ministry of the Environment.

McMaster University

Of particular significance in the environmental area is the **Institute of Environment and Health** which has been established jointly by McMaster University and the University of Toronto. The Institute's mandate involves interdisciplinary research in which physical scientists and engineers work with health and social scientists to approach environmental problems holistically.

The McMaster Eco-Research Program for the Hamilton Harbour

The Hamilton Harbour Ecosystem is undergoing fundamental change as a result of strong local and regional forces. This ecosystem in transition provides an excellent opportunity for cross-disciplinary research integrating the social sciences, humanities, medicine, engineering and natural sciences, based at the university, itself located in the ecosystem.

Mohawk College of Applied Arts and Technology

Always attuned to the needs of the community, the College has responded to increasing environmental challenges with the development of many leading-edge environmental technology courses and programs. An association has already been established between the Technology and Research branch of the Ministry of the Environment and Mohawk College through the creation of the Ontario Environmental Training Consortium (OETC).

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